

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-193
Relating to Exemptions Under Section 27156
of the Vehicle Code

CAR SOUND EXHAUST SYSTEMS, INC.
NEW AFTERMARKET CATALYTIC CONVERTERS

WHEREAS, Vehicle Code Section 27156 and Title 13 California Code of Regulations (hereafter "CCR") Section 2222(h), authorize the California Air Resources Board (ARB) and its Executive Officer to exempt new aftermarket catalytic converters from the prohibitions of Vehicle Code Section 27156.

WHEREAS, Car Sound Exhaust Systems, Inc. has applied to the ARB for exemption from the prohibitions of Vehicle Code Section 27156 for their catalytic converter series 500, 600, 700, 800 and 900. Maximum engine size and vehicle inertia weight limitations for each converter series are as follows:

Converter Series	<u>Oxidation</u>		<u>3-Way</u>		<u>3-Way + Oxidation</u>	
	Eng. Size lit.	Inertia WT lbs	Eng. Size lit.	Inertia WT lbs	Eng. Size lit.	Inertia WT lbs
500	2.0	3000	2.0	3000	-	-
600	5.7	4000	-	-	-	-
700	-	-	3.8	4000	-	-
800	-	-	-	-	5.0	4000
900	7.5	5500	5.0	5500	-	-

WHEREAS, pursuant to the authority vested in the Executive Officer by Health and Safety Code Section 39515 and in the Chief, Mobile Source Division by Health and Safety Code Section 39516 and Executive Order G-45-5, the Air Resources Board finds that the above aftermarket catalytic converter series comply with the California Vehicle Code Section 27156 and Title 13, CCR, Section 2222(h).

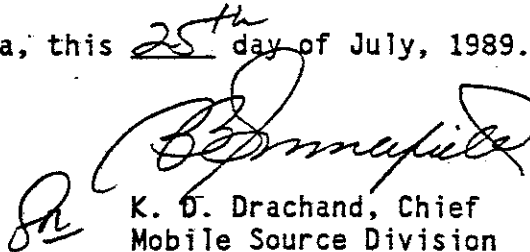
IT IS HEREBY RESOLVED that the above catalytic converter series are exempt from the prohibitions of Vehicle Code Section 27156 for installation on the approved application vehicles subject to the following conditions:

1. No changes are permitted to the converters as described in the application for exemption. Any changes to the converter, applicable model year, or other factors addressed in this Order must be evaluated and approved by the ARB.

2. Marketing of a converter using an identification other than those shown in the exemption application or marketing of a converter for an application other than those listed in the application catalog shall be prohibited unless prior approval is obtained from the ARB. Exemption of this product shall not be construed as an exemption to sell, offer for sale, or advertise any component of a converter as an individual device.
3. Any oral or written references to this Executive Order or its content by Car Sound Exhaust Systems, Inc., its principals, agents, employees, distributors, dealers, or other representatives must include the disclaimer that the Executive Order or the exemption is not an endorsement or approval of any emissions reduction claims for the catalytic converters and is only a finding that the converters are exempt from the prohibitions of Vehicle Code Section 27156.

Violation of any of the above conditions shall be grounds for revocation of this Order. The Order may be revoked only after ten days written notice of intention to revoke it, during which period the holder of the Order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request, and the Order may not be revoked until a determination is made, after the hearing, that grounds for revocation exist.

Executed at El Monte, California, this 25th day of July, 1989.


K. D. Drachand, Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF CAR SOUND EXHAUST SYSTEMS, INC.'S NEW AFTERMARKET
CATALYTIC CONVERTER SERIES 500, 600, 700, 800 AND 900 FOR EXEMPTION
FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 AND
TITLE 13, CALIFORNIA CODE OF REGULATIONS, SECTION 2222(h)

July, 1989

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EVALUATION OF CAR SOUND EXHAUST SYSTEMS, INC.'S NEW AFTERMARKET
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FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 AND
TITLE 13, CALIFORNIA CODE OF REGULATIONS, SECTION 2222(h)

by

Mobile Source Division

State of California
AIR RESOURCES BOARD
9528 Telstar Avenue
El Monte, CA 91731

(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.)

SUMMARY

Car Sound Exhaust Systems, Inc. (CSES), of 16191 Phoebe Avenue, La Mirada, CA 90638, has applied for exemption of their new aftermarket catalytic converter series 500, 600, 700, 800 and 900 under the "California Evaluation Procedures for New Aftermarket Non-Original Equipment Catalytic Converters". Maximum engine size and vehicle inertia weight limitations for each series are as follows:

Converter Series	<u>Oxidation</u>		<u>3-Way</u>		<u>3-Way + Oxidation</u>	
	Eng. Size lit.	Inertia WT lbs	Eng. Size lit.	Inertia WT lbs	Eng. Size lit.	Inertia WT lbs
500	2.0	3000	2.0	3000	-	-
600	5.7	4000	-	-	-	-
700	-	-	3.8	4000	-	-
800	-	-	-	-	5.0	4000
900	7.5	5500	5.0	5500	-	-

The applicant submitted all the required information and test results. California regulations require conversion efficiency of 70% for HC and CO, and 60% for NOx on three-way and 50% for three-way plus oxidation new aftermarket catalytic converters. The test results and information show that the CSES catalytic converter series 500, 600, 700, 800 and 900 meet the requirements of Vehicle Code Section 27156 and Title 13, California Code of Regulations, Section 2222(h) for the stated applications. Based on that, the staff recommends that CSES be granted an exemption as requested and that Executive Order D-193 be issued.

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EVALUATION OF CAR SOUND EXHAUST SYSTEMS, INC.'S NEW AFTERMARKET
CATALYTIC CONVERTER SERIES 500, 600, 700, 800 AND 900 FOR EXEMPTION
FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 AND
TITLE 13, CALIFORNIA CODE OF REGULATIONS, SECTION 2222(h)

I. INTRODUCTION

Car Sound Exhaust Systems, Inc. (CSES) of 16191 Phoebe Avenue, La Mirada, CA 90638 has applied for exemption of their new aftermarket catalytic converter series 500, 600, 700, 800 and 900 under the "California Evaluation Procedures for New Aftermarket Non-Original Equipment Catalytic Converters". Maximum engine size and vehicle inertia weight limitations for each series are as follows:

Converter Series	<u>Oxidation</u>		<u>3-Way</u>		<u>3-Way + Oxidation</u>	
	Eng. Size lit.	Inertia WT lbs	Eng. Size lit.	Inertia WT lbs	Eng. Size lit.	Inertia WT lbs
500	2.0	3000	2.0	3000	-	-
600	5.7	4000	-	-	-	-
700	-	-	3.8	4000	-	-
800	-	-	-	-	5.0	4000
900	7.5	5500	5.0	5500	-	-

II. CONCLUSION

The applicant submitted all the required information and test results. California regulations require conversion efficiency of 70% for HC and CO, and 60% for NOx on three-way and 50% for three-way plus oxidation new aftermarket catalytic converters. The test results and information meet all the California requirements. Based on that, the staff concludes that the CSES catalytic converter series 500, 600, 700, 800 and 900 meet the criteria for exemption set forth in Vehicle Code Section 27156 and Title 13, California Code of Regulations, Section 2222(h).

III. RECOMMENDATION

The staff recommends that CSES be granted an exemption as requested and that Executive Order No. D-193 be issued, permitting advertisement, sale and installation of their new aftermarket catalytic converters.

IV. DEVICE DESCRIPTION

The CSES catalytic converter consists of honeycomb type substrates coated with palladium and rhodium for reduction catalyst and platinum and palladium for oxidation catalyst. The substrate is enclosed in an outer shell or container of stainless steel. The CSES catalytic converters use materials and construction similar to the original equipment manufacturers. Their catalytic converter is sold with installation instructions and a two year or 25,000 miles warranty on the substrates and five years or 50,000 miles warranty on the container or shell.

V. DEVICE EVALUATION

CSES provided test data on the catalytic converter series 500, 600, 700, 800 and 900. The tests on the CSES converters were conducted by Automotive Testing and Development Services, Inc. (ATDS), of Huntington Beach, California, in accordance with federal test procedures. The mileage accumulation and test vehicles are shown in Table 1.

TABLE 1
Mileage Accumulation and Test Vehicles

<u>Converter Type</u>	<u>Mil. Acc. Veh No. 1</u>	<u>Mil. Acc. Veh. No. 2</u>	<u>Test Vehicle</u>
500 OC	1986 Toyota Celica 2.0L	1986 Nissan 200SX 2.0L	1979 Fiat Brava 2.0L
500 3-Way	1986 Toyota Celica 2.0L	1986 Nissan 200SX 2.0L	Same as Mileage Accumulation Vehicles
600 OC	1979 Oldsmobile Royale 5.7L	1979 Buick LeSabre 5.7L	Same as Mileage Accumulation Vehicles
700 3-Way	1983 Oldsmobile Delta 88 Royale 5.0L	1983 Oldsmobile Delta 88 Royale 5.0L	1988 Oldsmobile 98 Regency 3.8L
800 3-Way +OC	1983 Oldsmobile Delta 88 Royale 5.0L	1983 Oldsmobile Delta 88 Royale 5.0L	Same as Mileage Accumulation Vehicles
900 OC	1977 Ford LTD Country Squire 7.5L	1977 Lincoln Town Car 7.5L	Same as Mileage Accumulation Vehicles
900 3-Way	1977 Ford LTD Country Squire 7.5L	1977 Lincoln Town Car 7.5L	1983 Chevrolet El Camino 5.0L

The test results and conversion efficiencies for each converter series and type are shown in Table 2.

TABLE 2
Emissions Test Results and Conversion Efficiencies

<u>Converter</u>	<u>Test Type</u>	<u>HC</u>	<u>CO</u>
500 OC	Simulator	2.778	22.864
	Converter (1)	0.664	6.792
	Efficiency (1)	75%	78%
	Converter (2)	0.687	5.000
	Efficiency (2)	76%	70%
	Ave. Efficiency	75.5%	74%

TABLE 2 (CONTINUED)

<u>Converter</u>	<u>Test Type</u>	<u>HC</u>	<u>CO</u>	<u>NOX</u>
500 3-Way	Simulator (1)	2.178	9.684	2.944
	Converter (1)	0.250	1.773	0.241
	Efficiency (1)	89%	82%	92%
	Simulator (2)	1.405	14.557	3.232
	Converter (2)	0.226	2.099	0.434
	Efficiency (2)	84%	86%	87%
	Ave. Efficiency	86.5%	84%	89.5%
	Simulator (1)	1.596	15.508	
	Converter (1)	0.432	1.853	
	Efficiency (1)	73%	89%	
600 OC	Simulator (2)	1.654	25.198	
	Converter (2)	0.488	4.844	
	Efficiency (2)	71%	81%	
	Ave. Efficiency	72%	85%	
	Simulator	1.998	10.192	2.374
	Converter (1)	0.254	2.908	0.734
	Efficiency (1)	87%	72%	69%
	Converter (2)	0.260	2.720	0.826
	Efficiency (2)	87%	73%	65%
	Ave. Efficiency	87%	72.5%	67%
700 3-Way	Simulator (1)	2.698	20.404	3.131
	Converter (1)	0.453	2.747	1.358
	Efficiency (1)	83%	87%	57%
	Simulator (2)	2.740	22.257	2.98
	Converter (2)	0.582	3.686	0.868
	Efficiency (2)	79%	83%	71%
	Ave. Efficiency	81%	85%	64%
	Simulator (1)	2.307	60.715	-
	Converter (1)	0.632	5.848	-
	Efficiency (1)	73%	90%	-
800 3-Way +OC	Simulator (2)	2.937	48.787	-
	Converter (2)	0.750	4.244	-
	Efficiency (2)	74%	91%	-
	Ave. Efficiency	73.5	90.5%	-
900 OC	Simulator (1)	2.307	60.715	-
	Converter (1)	0.632	5.848	-
	Efficiency (1)	73%	90%	-
	Simulator (2)	2.937	48.787	-
	Converter (2)	0.750	4.244	-
	Efficiency (2)	74%	91%	-
	Ave. Efficiency	73.5	90.5%	-
	Simulator (1)	2.307	60.715	-
	Converter (1)	0.632	5.848	-
	Efficiency (1)	73%	90%	-

TABLE 2 (CONTINUED)

<u>Converter</u>	<u>Test Type</u>	<u>HC</u>	<u>CO</u>	<u>NOX</u>
900 3-Way	Simulator	3.300	19.295	2.742
	Converter (1)	0.239	3.497	1.034
	Efficiency (1)	93%	82%	62%
	Converter (2)	0.260	3.260	0.949
	Efficiency (2)	92%	83%	65%
	Ave. Efficiency	92.5%	82.5%	63.5%

VI. DISCUSSION

CSES catalytic converter series that are involved in this application are used either as 3-way or oxidation converters except for 800 series which is used as a 3-way plus oxidation. Appendix is a "Summary of the CSES Converter Information". The conversion efficiencies meet the requirements of the California regulations which are 70% for HC and CO on all converter types, 60% for NOx on three-way and 50% for NOx on three-way plus oxidation converters. The staff based the evaluation of the CSES new aftermarket converters on the results from ATDS tests and the submitted information.

APPENDIX

Summary of the CSES Converter Information

Converter Type	Use	Conversion Efficiency			Engine Size	Test Weight
		HC%	CO%	NOx%		
500 3-WAY+OC	OC	175.5	74	-	12.0L(122 CID)	3000 lbs
500 3-WAY+OC	3-WAY	186.5	84	89.5	12.0L(122 CID)	3000 lbs
600 OC	OC	172	85	-	15.7L(350 CID)	4000 lbs
700 3-WAY+OC	3-Way	187	72.5	67	13.8L(231 CID)	4000 lbs
800 3-WAY+OC	3-Way+OC	181	85	64	15.0L(307 CID)	4000 lbs
900 3-WAY+OC	OC	173.5	90.5	-	17.5L(460 CID)	5500 lbs
900 3-WAY+OC	3-WAY	193	82.5	63.5	15.0L(307 CID)	5500 lbs